L Number	Hits	Search Text	DB	Time stamp
1	431	selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5)) with (silicon or silane$1 or disilane$1 or chlorosilane$1 or chloro-silane$1 or (chloro adj silane$1) or SiH4 or "SiH4" or "SiH.sub.4" or "Si H.sub.4" or Si2H6 or "Si2H6" or "Si.sub.2H.sub.6" or "Si.sub.2 H.sub.6" or SiCl2H2 or "SiCl2H2" or "SiCl.sub.2H.sub.2" or "Si Cl.sub.2 H.sub.2" or "SiCl.sub.2 H.sub.2" or "Si Cl.sub.2H.sub.2")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:45
2	465444	(upper or second or top or another) adj3 (plate$1 or electrode$1)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 11:40
3	11	(selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5)) with (silicon or silane$1 or disilane$1 or chlorosilane$1 or chloro-silane$1 or (chloro adj silane$1) or SiH4 or "SiH4" or "SiH.sub.4" or "Si H.sub.4" or Si2H6 or "Si2H6" or "Si.sub.2H.sub.6" or "Si.sub.2 H.sub.6" or SiCl2H2 or "SiCl2H2" or "SiCl.sub.2H.sub.2" or "Si Cl.sub.2 H.sub.2" or "SiCl.sub.2 H.sub.2" or "Si Cl.sub.2H.sub.2")) with ((upper or second or top or another) adj3 (plate$1 or electrode$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 11:40
4	3	(("4497683") or ("5006911") or ("4963506")).PN.	USPAT; US-PGPUB	2003/07/13 12:02
5	25	(selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5)) with (silicon or silane$1 or disilane$1 or chlorosilane$1 or chloro-silane$1 or (chloro adj silane$1) or SiH4 or "SiH4" or "SiH.sub.4" or "Si H.sub.4" or Si2H6 or "Si2H6" or "Si.sub.2H.sub.6" or "Si.sub.2 H.sub.6" or SiCl2H2 or "SiCl2H2" or "SiCl.sub.2H.sub.2" or "Si Cl.sub.2 H.sub.2" or "SiCl.sub.2 H.sub.2" or "Si Cl.sub.2H.sub.2")) same ((upper or second or top or another) adj3 (plate$1 or electrode$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:11
6	581471	capacitor or capacitors or DRAM or DRAMs	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:12
7	5953	BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:14
8	26351	(tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2 O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "Ta O.sub.2" or TaO or "TaO"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:19
9	1480	(capacitor or capacitors or DRAM or DRAMs) and (BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate) and ((tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2 O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "Ta O.sub.2" or TaO or "TaO")	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:43
10	1289	crystal$7 with ((BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate) or ((tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2 O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "Ta O.sub.2" or TaO or "TaO"))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:44
11	615	(capacitor or capacitors or DRAM or DRAMs) and (crystal$7 with ((BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate) or ((tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2 O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "Ta O.sub.2" or TaO or "TaO")))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:44

12	788	selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:45
13	9	((capacitor or capacitors or DRAM or DRAMs) and (crystal$7 with ((BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate) or ((tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2 O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "Ta O.sub.2" or TaO or "TaO")))) and (selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5)) with (silicon or silane$1 or disilane$1 or chlorosilane$1 or chloro-silane$1 or (chloro adj silane$1) or SiH4 or "SiH4" or "SiH.sub.4" or "Si H.sub.4" or Si2H6 or "Si2H6" or "Si.sub.2H.sub.6" or "Si.sub.2 H.sub.6" or SiCl2H2 or "SiCl2H2" or "SiCl.sub.2H.sub.2" or "Si Cl.sub.2 H.sub.2" or "SiCl.sub.2 H.sub.2" or "Si Cl.sub.2H.sub.2"))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:47
-	3	(("6458699") or ("6509239") or ("6159852")).PN.	USPAT; US-PGPUB	2003/07/13 12:00

DOCUMENT-IDENTIFIER: US 20010019875 A1

TITLE: Electrode structure of capacitor for semiconductor memory device and fabrication method thereof

---------- KWIC ---------

Claims Text - CLTX (32):

31. The method of claim 30, wherein the conductive layer is **selectively** formed on the **upper and lower electrode** composed of **polycrystalline silicon by a CVD**.

US-PAT-NO: 5312769

DOCUMENT-IDENTIFIER: US 5312769 A

TITLE: Method of making a semiconductor memory device

---------- KWIC ---------

Brief Summary Text - BSTX (12):

According to the invention, a method of fabricating a semiconductor memory device is provided, comprising the steps of: forming transistors on a semiconductor substrate; forming **polycrystalline silicon** lead pads on said semiconductor substrate, each of said **polycrystalline silicon** lead pads electrically connected to said transistors; forming a first interlayer insulating film over said transistors and said **polycrystalline silicon** lead pads; forming bit lines electrically connected to said transistors; forming a second interlayer insulating film on said bit lines; forming contact holes in said first interlayer insulating film, for exposing surfaces of said **polycrystalline silicon** lead pads; **selectively** growing first **polycrystalline silicon** films on said surfaces of said first **polycrystalline silicon** lead pads, and laterally growing upper portions of said **polycrystalline silicon** films, by a **selective chemical vapor deposition** technique, thereby forming lower portions of storage electrodes; forming oxide films on top and side surfaces of said lower portions of said storage electrodes; anisotropically etching said oxide films, for leaving portions of said oxide films on said side surfaces of said

storage electrodes; **selectively** growing second **polycrystalline silicon** films on said top surfaces of said first **polycrystalline silicon** films by a **selective chemical vapor deposition** technique, thereby forming **upper portions of said storage electrodes**; removing said portions of said oxide films; forming dielectric films on said storage electrodes; and forming plate electrodes on said dielectric films.

Claims Text - CLTX (11):

selectively growing second **polycrystalline silicon** films on said top surfaces of said first **polycrystalline silicon** films by a **selective chemical vapor deposition** technique, thereby forming **upper portions of said storage electrodes**;

US-PAT-NO: 5330936

DOCUMENT-IDENTIFIER: US 5330936 A

TITLE: Method of producing a silicon nitride film and method of fabricating a semiconductor device

---------- KWIC ---------

Abstract Text - ABTX (1):

A method of producing a silicon nitride film free of photolithographhty and dry etching processes and a method of fabricating a semiconductor memory cell device are disclosed. A first **polycrystalline silicon** film serving as a bottom electrode is **selectively** formed only on a **silicon** region of the substrate with a field oxide film and a **silicon** nitride film is **selectively** formed only on the first **polycrystalline silicon** film by **selective chemical vapor deposition** in which a source gas including a combination of both ammonia and either **silane** or dichlorosilane is doped with hydrogen chloride. Then, a second polycrystalline film serving as a **top electrode** is selectively formed on the silicon nitride film.

Brief Summary Text - BSTX (3):

Stacked capacitors or trench capacitors which serve as memory cells of a dynamic random access memory (DRAM) are well known. The conventional method of fabricating the typical stacked capacitor will hereinafter be described in detail with reference to the accompanying drawings. Referring to FIG. 1, a field oxide film 1 which serves to separate a memory cell

from other elements
of the semiconductor device has **selectively** been formed on a **silicon** substrate
2 by the local oxidation of **silicon** (LOCOS), as shown in FIG. 1, before a
polycrystalline silicon film 3A is deposited on the entire region of the
silicon substrate 2 including the field oxide film region by **chemical vapor**
deposition (CVD) not shown in FIG. 1. Then, the polycrystalline silicon film
3A is subjected to patterning by means of photolithography and dry etching so
as to form a bottom electrode only on the silicon region of the substrate as
shown in FIG. 1(b). As shown in FIG. 1(c), a silicon nitride film 4B and a
polycrystalline silicon film 5A are deposited in turn on the entire region of
the substrate including the field oxide film region. And then, as shown in
FIG. 1(d), the polycrystalline silicon film 5A and the silicon nitride film 4B
are simultaneously subjected to patterning by use of photolithography and dry
etching to form a **top electrode** and a dielectric film respectively. Further,
required in the fabrication process of the stacked capacitor are processes of
controlling a conductivity of the capacitor by ion-implantation and heat
treatment. Also required in the processes of photolithography and dry etching
are the processes of cleaning, applying a resist, baking, exposing, removing a
resist and the like.

Detailed Description Text - DETX (11):

An embodiment of a novel method of fabricating a typical stacked capacitor
serving as memory cells will hereinafter fully be described in detail with
reference to the accompanying drawings. Referring to FIG. 2(a), a field oxide
film is formed up to thickness of 200 nm on a silicon substrate 2 by means of

the local oxidation of silicon (LOCOS) so as to provide electrical separation of the capacitor from another element. As shown in FIG. 2(b), a polycrystalline silicon film 3 is deposited up to 40 nm only on the silicon region of the substrate opposite to the field oxide film region by means of the selective growth of polycrystalline silicon so as to form a bottom electrode of the capacitor. As shown in FIG. 2(c), a **silicon** nitride film 4 is **selectively** deposited up to 10 nm only on the **polycrystalline silicon** film 3 by means of the set forth **selective chemical vapor deposition of silicon** nitride so as to form a dielectric film of the capacitor. As shown in FIG. 2(d), a polycrystalline silicon film 5 is deposited up to 200 nm on the silicon nitride film 4 by means of the selective growth of polycrystalline silicon so as to form a **top electrode** of the capacitor. The stacked capacitor is completely fabricated without photolithography and dry etching. In the process of depositing the silicon nitride film 4, the selective chemical vapor deposition is carried out on condition that silicon diluted with helium/ammonia/hydrogen chloride is 60/1200/5 (sccm), the growth pressure is 0.18 torr and a growth temperature is 800 degrees. In this case, the silane gas is diluted with helium up to 1:4 in the volume ratio of silane to helium and the volume of a pure silane gas is 12 sccm. The selective chemical vapor deposition of silicon nitride is available on condition that the volume ratio of pure silane to hydrogen chloride is in the range of the volume ratio from 1:0.25 to 1:0.6 at a growth temperature of 800 degrees and at pressure of 1 atm. When the volume ratio of pure silane to hydrogen chloride is greater than 1:0.6, the polycrystalline silicon film 3 may be etched. In contrast,

when the volume
ratio of pure silane to hydrogen chloride is less than 1:0.25, the selective
chemical vapor deposition is not available. Growth of silicon crystal may be
carried out on the field silicon oxide film on condition that the volume ratio
of silane to hydrogen chloride is in the range from 1:0.25 to 1:0.3.
Preferably, the volume ratio of silane to hydrogen chloride is in the range
from 1:0.3 to 1:0.6. But at a high temperature, for example 850 degrees,
decomposition of silane is promoted to increase the partial pressure of
silylene, so that the selective chemical vapor deposition of silicon nitride
may be available on condition that the volume ratio of silane to hydrogen
chloride is less than 1:0.7.

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
1	BRS	L1	431	selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5)) with (silicon or silane$1 or disilane$1 or chlorosilane$1 or chloro-silane$1 or (chloro adj silane$1) or SiH4 or "SiH4" or "SiH.sub.4" or "Si H.sub.4" or Si2H6 or "Si2H6" or "Si.sub.2H.sub.6" or "Si.sub.2 H.sub.6" or SiCl2H2 or "SiCl2H2" or "SiCl.sub.2H.sub.2" or "Si Cl.sub.2 H.sub.2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:45			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
2	BRS	L2	465444	(upper or second or top or another) adj3 (plate$1 or electrode$1)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 11:40			0
3	BRS	L3	11	1 with 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 11:40			0
4	IS&R	L4	3	(("4497683") or ("5006911") or ("4963506")).PN.	USPAT; US-PGPUB	2003/07/13 12:02			0
5	BRS	L5	25	1 same 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:11			0
6	BRS	L6	581471	capacitor or capacitors or DRAM or DRAMs	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:12			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
7	BRS	L7	5953	BST or "BST" or (barium adj strontium adj titanate) or (barium-strontium-titanate) or bariumstrontiumtitanate	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:14			0
8	BRS	L8	26351	(tantalum adj (oxide or dioxide or pentoxide or pent-oxide)) or Ta2O5 or "Ta2O5" or "Ta.sub.2O.sub.5" or "Ta.sub.2O.sub.5" or TaO2 or "TaO2" or "TaO.sub.2" or "TaO.sub.2" or TaO or "TaO"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:19			0
9	BRS	L9	1480	6 and 7 and 8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:43			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
10	BRS	L10	1289	crystal$7 with (7 or 8)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:44			0
11	BRS	L11	615	6 and 10	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:44			0
12	BRS	L12	788	selective$3 with (polysilicon or poly$1 or (polycrystalline adj silicon)) with (CVD or PECVD or LPCVD or APCVD or (chemical adj vapor adj deposit$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:45			0
13	BRS	L13	9	11 and 1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/13 12:47			0